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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/768,872	01/23/2001	Rina Aharoni	60772-PCT-US/JPW/GJG/CSN	3801

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EXAMINER	
VANDERVEGT, FRANCOIS P	
ART UNIT	**PAPER NUMBER**
1644	

DATE MAILED: 09/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/768,872	AHARONI ET AL.	
	Examiner	Art Unit	
	F. Pierre VanderVegt	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *16,19,20,32-39 and 157-165* is/are pending in the application.

4a) Of the above claim(s) *157-165* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16,19 and 32-39* is/are rejected.

7)☒ Claim(s) *20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This application is a continuation of PCT Application Serial Number PCT/US99/16747, which claims the benefit of the filing date of provisional application 60/093,859, and claims the benefit of the filing date of provisional application 60/101,825, and claims the benefit of the filing date of provisional application 60/102,960, claims the benefit of the filing date of provisional application 60/106,350, and claims the benefit of the filing date of provisional application 60/108,184.

Claims 1-15, 17, 18, 21-31 and 40-156 have been canceled.

Claims 16, 19-20, 32-39 and 157-165 are currently pending.

Claims 157-165 stand as withdrawn, as they are not drawn to the same invention as that of Group I, as elected by Applicant with traverse in the paper filed June 6, 2002.

Claims 16, 19-20 and 32-39 are the subject of examination in the present Office Action.

1. In view of Applicant's amendment filed June 4, 2004, only the following rejections are maintained.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 16, 19 and 32-39 stand rejected under 35 U.S.C. 102(b) as being anticipated by Arnon, et al. (Israel J. Med. Sci. [1989] 25:686-689; cited by Applicant on form PTO-1449 filed July 5, 2002.

It was previously stated: "Arnon teaches COP 1, a synthetic basic random copolymer comprising A, E, K, and Y residues. Applicant is reminded that the term "comprising" in claim 16 is an open term that allows the inclusion of other elements that are not specifically recited in the claim, including glutamic acid residues. Additionally, the phrase "consisting essentially of" in claim 16 is being interpreted as being inclusive or open-ended, not excluding additional non-recited elements, i.e., "comprising," provided that the additional elements do not materially affect the basic and novel characteristic(s) of the claimed invention. Claim 18 is included because the term "substantially free" is a relative term that has not been adequately defined by the instant specification or claims as filed. Arnon teaches that alanine is present in the polymer at a molar ratio of 6.0, glutamic acid is present in the polymer at a molar ratio of 1.9, lysine is present in the polymer at a molar ratio of 4.7 and tyrosine is present in the polymer at a molar ratio of 1.0 (Abstract in particular). Given that the sum of the molar ratios is 13.6, alanine is present as a molar fraction of 0.441, lysine is present as a molar fraction of 0.346 and tyrosine is present as a molar fraction of 0.140 [claim 19]. Arnon teaches that COP 1 was effective in exerting a suppressive

effect on EAE when injected into guinea pigs when administered in an aqueous saline solution, a pharmaceutically acceptable carrier (page 686, second column in particular). Arnon further states that COP 1 is effective in suppressing EAE in rabbits, mice, rhesus monkeys and baboons (page 686, second column in particular). The prior art teaching anticipates the claimed invention.

Claims 32 and 33 are included because, while Arnon does not specifically teach the size of COP 1, it is noted that it is a randomly arranged synthetic polypeptide product and the final size of the product will be determined by the amounts of the individual constituent amino acid residues added to the reaction mixture and the time the reaction is allowed to run. Further, in order to exert its effect on T cells, the peptide must be processed into small 8-20 amino acid residue long epitope peptide, irrespective of the stating size of the polypeptide. Accordingly, provided that the ratio of the elements is maintained in the synthesis of the polypeptide, the beginning size of the polymer is not seen as being patentably distinct."

Applicant's arguments filed June 4, 2004 have been fully considered but they are not persuasive. Applicant argues that the COP 1 copolymer of Arnon does not anticipate the instant copolymer because the copolymer of Arnon comprises four different amino acid residues: glutamic acid, lysine, tyrosine and alanine. Applicant points out that page 1 of the instant specification defines a "terpolymer" (as recited in the claims) as "consisting essentially of" only three of the four amino acid residues found in COP 1, preferably alanine, lysine and tyrosine. However, Applicant is reminded that the phrase "consisting essentially of" does not exclude additional non-recited elements provided that the additional elements do not materially affect the basic and novel characteristic(s) of the claimed invention. While the COP 1 copolymer of Arnon does contain a substantial amount of glutamic acid, the function of the instantly disclosed terpolymer and the function of COP 1 appear to be the same. Since the "basic and novel characteristic(s) of the claimed invention" is the functional ability to inhibit an autoimmune response, there is no evidence that the presence of glutamic acid in the copolymer taught by Arnon "materially affects" the function of the copolymer. Accordingly, the recitation of "consisting essentially of" in the instant claims and in the definition of the term "terpolymer" does not exclude the presence of glutamic acid simply because the copolymer of Arnon contains a lot of it.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly

owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 16, 19, and 32-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teitelbaum et al (Proc. Nat. Acad. Sci. [1988] 85(24):9724-9728; cited by Applicant on form PTO-1449 filed July 5, 2002) in view of Arnon, et al. (Israel J. Med. Sci. [1989] 25:686-689; cited by Applicant on form PTO-1449 filed July 5, 2002).

It was previously stated: "Teitelbaum teaches Cop 1, a 21,000 dalton [claim 32] synthetic basic random copolymer comprising A, E, K, and Y residues. Applicant is reminded that the term "comprising" in claim 16 is an open term that allows the inclusion of other elements that are not specifically recited in the claim, including glutamic acid residues. Additionally, the phrase "consisting essentially of" in claim 16 is being interpreted as being inclusive or open-ended, not excluding additional non-recited elements, i.e., "comprising," provided that the additional elements do not materially affect the basic and novel characteristic(s) of the claimed invention. Claim 18 is included because the term "substantially free" is a relative term that has not been adequately defined by the instant specification or claims as filed. Teitelbaum teaches that alanine is present in the polymer at a molar ratio of 6.0, glutamic acid is present in the polymer at a molar ratio of 1.9, lysine is present in the polymer at a molar ratio of 4.7 and tyrosine is present in the polymer at a molar ratio of 1.0 (Abstract in particular). Given that the sum of the molar ratios is 13.6, alanine is present as a molar fraction of 0.441, lysine is present as a molar fraction of 0.346 and tyrosine is present as a molar fraction of 0.140 [claim 19]. Teitelbaum teaches that Cop 1 was effective in specifically inhibiting T cell responses to myelin basic protein, which is a target autoantigen in the inflammatory autoimmune disease multiple sclerosis and in the experimental allergic encephalomyelitis (EAE) model (see entire publication).

Teitelbaum teaches that Cop 1 may be effective for the *in vivo* treatment of multiple sclerosis, but does not teach an "effective amount" in a pharmaceutically acceptable carrier.

Arnon et al teaches that the administration of Cop 1 to rhesus monkeys and baboons even after the onset of clinical symptoms of EAE demonstrated reversal of disease symptoms and full recovery (paragraph bridging pages 686-687 in particular). Arnon further teaches that the use of Cop 1 in human subjects improved the disability status of the subjects and reduced exacerbation versus placebo-treated controls (paragraph bridging pages 688-689 in particular). Accordingly, Arnon teaches the use of an effective amount of Cop 1.

It would have been prima facie obvious to a person having ordinary skill in the art at the time the invention was made to formulate an effective amount of the Cop 1 copolymer of Teitelbaum in a pharmaceutically acceptable carrier with a reasonable expectation of success because Arnon teaches that it improves the clinical status of non-human EAE subjects and human multiple sclerosis patients. One would have been motivated to use this compound in a pharmaceutical preparation by the teaching of Arnon that Cop 1 is related to the encephalogenic myelin basic protein but is not itself encephalogenic.

Claim 33 is included because, while Teitelbaum teaches that Cop 1 is 21Kd in size, it is noted that it is a randomly arranged synthetic polypeptide product. Further, in order to exert its effect on T cells, the peptide must be processed into small 8-20 amino acid residue long epitope peptide, irrespective of the stating size of the polypeptide. Accordingly, provided that the ratio of the elements is maintained in the synthesis of the polypeptide, the beginning size of the polymer is not seen as being patentably distinct."

Applicant argues that the combined references do not render the instantly claimed invention obvious for the same reasons that Applicant asserts that the claims are not anticipated by Arnon *supra*. Namely, applicanr asserts the non-obviousness of the instant copolymer because the copolymer of Teitelbaum comprises four different amino acid residues: glutamic acid, lysine, tyrosine and alanine; whereas the instantly disclosed terpolymer "consists essentially of" only the three amino acid residues alanine, lysine and tyrosine. However, Applicant is reminded that the phrase "consisting essentially of" does not exclude additional non-recited elements provided that the additional elements do not materially affect the basic and novel characteristic(s) of the claimed invention. While the copolymer of Teitelbaum does contain a substantial amount of glutamic acid, the function of the instantly disclosed terpolymer and the function of the Teitelbaum copolymer appear to be the same. Since the "basic and novel characteristic(s) of the claimed invention" is the functional ability to inhibit an autoimmune response, there is no evidence that the presence of glutamic acid in the copolymer taught by Teitelbaum "materially affects" the function of the copolymer. Accordingly, the recitation of "consisting essentially of" in the instant claims and in the definition of the term "terpolymer" does not exclude the presence of glutamic acid simply because the copolymer of Teitelbaum contains a lot of it.

Conclusion

4. Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to F. Pierre VanderVegt whose telephone number is (571) 272-0852. The examiner can normally be reached on M-Th 6:30-4:00; Alternate Fridays 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on (571) 272-0841. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

F. Pierre VanderVegt, Ph.D.
Patent Examiner
January 14, 2004

PATRICK J. NOLAN
PRIMARY EXAMINER
9/7/04